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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/323,512	06/01/1999	BRAD KINDIG	ISAA0037	9272

7590 12/23/2005

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EXAMINER	
COLBERT, ELLA	
ART UNIT	**PAPER NUMBER**
3624	

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/323,512	KINDIG ET AL	
	Examiner	Art Unit	
	Ella Colbert	3624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8,10-12,14-19,30 and 32-35* is/are pending in the application.

4a) Of the above claim(s) *20-29 and 36-38* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-8,10-12,14-19,30 and 32-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 3-8, 10-12, 14-19, 30, and 32-35 are pending in this communication filed 10/19/05 entered as Response After Non-Final. The response to the Election/Restriction Requirement filed 06/20/05 is hereby acknowledged. Applicants' elected Group I, claims 1, 3-8, 10-12, 14-19, 30, and 32-35 for examination on the merits and cancelled Group II, claims 20-29 and Group III, claims 36-38 without traverse.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 4, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over (US 6,442,553) Take in view of (US 5,594,881) Fecteau et al, hereafter Fecteau and further in view of (US 5,893,120) Nemes.

With respect to claims 1 and 30, Take teaches receiving a new data record and a key that is associated with the new data record (col. 1, lines 36-44); responsive to said receiving said new data record and said associated key, identifying one of the sections based upon the associated key of the new data record (col. 2, lines 27-35); responsive to said identifying one of the sections, determining if said new data record fits in an unused storage space on said identified section based on a size of said new data record (col. 1, lines 45-63); if said new data record fits in said unused storage space, then storing said new record in said identified section (col. 2, lines 40-50).

Take failed to teach, if said size of said new data record is greater than a size of said unused storage space, then ranking all data records on said identified section according to a computer-implemented ranking function and summing sizes of said all data records below rank of said new data record; if said sum is not greater than said size of said new data record, then ending process; and storing the new data record in the identified section.

Fecteau teaches, if said size of said new data record is greater than a size of said unused storage space, then ranking all data records on said identified section according to a computer-implemented ranking function (col. 6, lines 52-64 and col. 7, lines 1-10); summing sizes of said all data records below rank of said new data record (col. 7, lines 48-67 and fig. 6); if said sum is not greater than said size of said new data record, then ending process; and storing the new data record in the identified section (col. 8, lines 11-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the size of said new data record greater than a size of said unused storage space, then ranking all data records on said identified section according to a computer-implemented ranking function and summing sizes of said all data records below rank of said new data record; if said sum is not greater than said size of said new data record, then ending process; and storing the new data record in the identified section and to modify in Take because such a modification would allow Take to free storage space by the operating system "paging out" least recently used pages (ranking) and their various sizes.

Take fails to teach, if said sum is greater than said size of said new data record, then deleting one or more data records from the identified section. Nemes teaches, if sum is greater than said size of said new data record, then deleting one or more data records from the identified section if the identified section (col. 5, lines 16-34 and lines

53-57). It would have been obvious to one having ordinary skill in the art at the time the invention was made to if said sum is greater than said size of said new data record, then deleting one or more data records from the identified section and to modify in Take because such a modification would allow Take's system to save space since the space in a database is limited to the amount of data contained in a certain number of records in the database.

With respect to claims 3 and 32, Take fails to teach the ranking function is a least recently used algorithm. Nemes teaches the ranking function is a least recently used algorithm (col. 7, lines 65-67 and col. 8, lines 1-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the ranking function as a least recently used algorithm and to modify in Take because such a modification would allow Take's system to have a finite sequence of steps (which is well known in the art) for performing the ranking function.

With respect to claim 4, Take teaches the ranking function is a function of the statistical properties of the data being stored (col. 8, lines 35-43).

4. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Take and Nemes in view of (US 5,809,494) Nguyen.

With respect to claim 5, Take and Nemes fail to teach, each of the plurality of sections is an integer multiple of the page size that is used by an operating system to transfer data between a primary storage and a secondary storage. Nguyen teaches each of the plurality of sections is an integer multiple of the page size that is used by an operating system to transfer data between a primary storage and a secondary storage (col. 1, lines 33-39, col. 4, lines 39-67, and col. 5, lines 1-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to

have each of the plurality of sections is an integer multiple of the page size that is used by an operating system to transfer data between a primary storage and a secondary storage and to modify in Take because such a modification would allow Take to have a data structure to enable the rapid retrieval of items by using a "hash table" and to have a database to be searched with a hash table that fits into primary storage (such as RAM) with the item being sought accessed in secondary storage.

With respect to claim 6, Take and Nguyen fail to teach the sections are about the same page size that is used by an operating system to transfer data between a primary storage and a secondary storage. Nemes teaches of the sections is about the same page size that is used by an operating system to transfer data between a primary storage and a secondary storage (col. 1, lines 66-67, col. 2, lines 1-15 and lines 53-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the sections is about the same page size that is used by an operating system to transfer data between a primary storage and a secondary storage and to modify in Take because such a modification in Take would allow Take's system to save space since the space in a database since the space in a database is limited to the amount of data contained in a certain number of records.

With respect to claim 7, Take fails to teach, additionally comprising allocating a contiguous memory space to contain each of the sections. Nguyen teaches, additionally comprising allocating a contiguous memory space to contain each of the sections (col. 4, lines 39-54). Nemes teaches additionally comprising allocating a contiguous memory space to contain each of the sections (col. 1, lines 66-67 and col. 2, lines 1-15 and lines 53-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to allocate a contiguous memory space to contain each of the sections and to modify in Take because such a modification would

allow Take to have the number of memory blocks with each block accommodating information with respect to a range of hash values.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 8, 10, 11, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over (US 6,442,553) Take in view of (US 5,594,881) Fecteau et al, hereafter Fecteau and in view of (US 5,809,494) Nguyen and further in view of (US 5,893,120) Nemes.

With respect to claim 8, Take teaches, receiving a new data record and a key that is associated with the new data record (col. 1, lines 36-44); responsive to said receiving said new data record and said associated key, identifying a section from a plurality of sections, the identifying based upon the associated key of the new data record (col. 2, lines 27-35); responsive to said identifying one of the sections, determining if said new data record fits in an unused storage space on said identified section based on a size of said new data record (col. 1, lines 45-63).

Take failed to teach, if said new data record fits in said unused storage space, then storing said new data record in said identified section; if said size of said new data record is greater than a size of said unused storage space, then ranking all data records on said identified section according to a computer implemented ranking function;

summing sizes of said all data records below rank of said new data record; if said sum is not greater than said size of said new data record, then ending process; and storing the new data record in the identified section.

Fecteau teaches, if said new data record fits in said unused storage space, then storing said new data record in said identified section (col. 6, lines 3-34); if said size of said new data record is greater than a size of said unused storage space, then ranking all data records on said identified section according to a computer implemented ranking function (col. 6, lines 53-64, col. 7, lines 1-9, and fig. 5);summing sizes of said all data records below rank of said new data record (col. 7, lines 29-35); if said sum is not greater than said size of said new data record, then ending process (col. 9, lines 19-30); and storing the new data record in the identified section (col. 9, lines 31-46). It would have been obvious to one having ordinary skill in the art at the time the invention was made to if said new data record fits in said unused storage space, then storing said new data record in said identified section; if a size of said new data record is greater than a size of said unused storage space, then ranking all data records on said identified section according to a computer implemented ranking function; summing sizes of said all data records below rank of said new data record; if said sum is not greater than said size of said new data record, then ending process; and storing the new data record in the identified section and to modify in Take because such a modification would allow Take's system to save space since the space in a database is limited to the amount of data contained in a certain number of records in the database.

With respect to claim 10, Take and Fecteau failed to teach, the ranking scheme identifies which ones of the data records are the least recently used. Nguyen teaches, the ranking scheme identifies which ones of the data records are the least recently used (col. 4, lines 59-67 and col. 5, lines 1-12). Nemes teaches, the ranking scheme

identifies which ones of the data records are the least recently used (col. 6, lines 9-11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the ranking scheme identifies which ones of the data records are the least recently used and to modify in Take because such a modification would allow Take to have the hashed data for successive records accumulated in each memory-block until it fills.

With respect to claim 11, Take, Fecteau, and Nguyen failed to teach the sections are about the same size that is used by an operating system to transfer data between a primary storage and a secondary storage. Nemes teaches the sections are about the same page size that is used by an operating system to transfer data between a primary storage and a secondary storage (col. 1, lines 66-67, col. 2, lines 1-15 and lines 53-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the sections about the same page size that is used by an operating system to transfer data between a primary storage and a secondary storage and to modify in Take because such a modification in Take would allow Take's system to save space since the space in a database since the space in a database is limited to the amount of data contained in a certain number of records.

With respect to claim 33, Take, Fecteau, and Nemes failed to teach, the database occupies a single contiguous physical memory space. Nguyen teaches, the database occupies a single contiguous physical memory space (col. 2, lines 45-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the database occupy a single contiguous physical memory space and to modify in Take because such a modification would allow Take to have the number of memory blocks with each block accommodating information with respect to a range of hash values.

With respect to claim 34, Take, Fecteau, and Nemes failed to teach, the size of each of the sections is an integer multiple to the page size that is used by an operating system to transfer data between a primary storage and a secondary storage. Nguyen teaches each of the plurality of sections is an integer multiple of the page size that is used by an operating system to transfer data between a primary storage and a secondary storage (col. 1, lines 33-39, col. 4, lines 39-67, and col. 5, lines 1-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the size of each of the sections is an integer multiple of the page size that is used by an operating system to transfer data between a primary storage and a secondary storage and to modify in Take because such a modification would allow Take to have a data structure to enable the rapid retrieval of items by using a "hash table" and to have a database to be searched with a hash table that fits into primary storage (such as RAM) with the item being sought accessed in secondary storage.

With respect to claim 35, Take, Fecteau, and Nguyen fail to teach the size of each of the sections is about equal to the page size that is used by an operating system to transfer data between a primary storage and a secondary storage. Nemes teaches the size of each of the sections is about equal to the page size that is used by an operating system to transfer data between a primary storage and a secondary storage (col. 1, lines 66-67, col. 2, lines 1-15 and lines 53-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the size of each of the sections to be about equal to the page size that is used by an operating system to transfer data between a primary storage and a secondary storage and to modify in Take because such a modification in Take would allow Take's system to save space since the space in a database since the space in a database is limited to the amount of data contained in a certain number of records.

7. Claims 12 and 14-19 are rejected as being unpatentable over (US 5,809,494) Nguyen and (US 6,442,553) Take in view of (US 5,893,120) Nemes and further in view of (US 5,594,881) Fecteau.

With respect to claims 12 and 20, Nguyen teaches a plurality of sections, each of the sections being about the same memory size that is used by an operating system to transfer data between a primary storage and a secondary storage (col. 3, lines 1-8). Nguyen failed to teach, a control program receiving a a new data record and a key that is associated with the new data record; responsive to said receiving said new data record and said associated key, identifying one of the sections based upon the associated key of the new data record; responsive to said identifying one of the sections, determining if said new data record fits in an unused storage space on said identified section based on a size of said new data record; if said new data record fits in said unused storage space, then storing said new data record in said identified section; If said size of new data record is greater than a size of said unused storage space, then ranking all data records on said identified section according to a computer implemented ranking function; summing sizes of all data records below rank of said new data record; if said sum is not greater than said size of said new data record, then ending process; and if said sum is greater than said size of said new data record, then deleting one or more data records from the identified section and storing the new data record in the identified section.

With respect to claim 14, Nguyen teaches, the ranking function determines a last access time for each of the data records or the selected sections (3, lines 9-19).

With respect to claim 15, Nguyen teaches at least one of the sections includes at least one item of section information (col. 3, lines 20-32).

With respect to claim 16, Nguyen teaches, the section information includes the number of data records that are contained in the section (col. 3, lines 33-54).

With respect to claims 17 and 25, Nugyen teaches, the section information includes an offset from the beginning of the section to the first unused position within the section (col. 5, lines 13-27).

With respect to claim 18, Nguyen teaches, the section information includes a section number that is associated with the section (col. 4, lines 6-18).

With respect to claim 19, Nguyen, Take, Nemes, and Fecteau failed to teach, comprising a client application which provides the storage request of the data record and the key to the control program, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a client application which provides the storage request of the data record and to modify in Nguyen because such a modification would allow Nguyen's system to have interfaces which are related functions (for example providing a storage request or the key to a control program) through which a client application accesses the service of a server application which is well known in the art.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Blandy et al (US 5,561,785) disclosed garbage collection .

Inquiries

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ella Colbert whose telephone number is 571-272-6741. The examiner can normally be reached on Tuesday-Thursday, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Millin can be reached on 571-272-6747. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

E. Colbert
Primary Examiner
December 17, 2005